SYSTEM AND METHOD FOR USING HOT GAS RE-HEAT FOR HUMIDITY CONTROL

ABSTRACT OF THE DISCLOSURE

A humidity control method is provided for a multi-stage cooling system having two or more refrigerant circuits. A hot gas re-heat circuit having a hot gas re-heat coil is connected to one of the refrigerant circuits and is placed in fluid communication with the output airflow from the evaporator of that refrigerant circuit to provide additional dehumidification to the air. Humidity control is only performed during cooling operations and ventilation operations. During a first stage cooling operation using only one refrigerant circuit and having a low cooling demand, the request for humidity control activates the hot gas re-heat circuit for dehumidification and activates a second refrigerant circuit to provide cooling capacity. During a second stage cooling operation using two or more refrigerant circuits and having a high cooling demand, the request for humidity control is suspended and is initiated only upon the completion of the second stage cooling demand.